CLAIMS

1. A wiper arm window latch system comprising:

a wiper arm rotatably mounted in a window for wiping said window;

a drive motor for driving said wiper arm; and

a drive coupler for coupling said wiper arm to said drive motor in order to latch said window to a door and also for coupling said wiper arm to said drive motor such that when said window is in a closed position said wiper arm may be rotatably driven by said drive motor.

2. The wiper arm window latch system as recited in claim 1 wherein said drive latch comprises:

a receiver for receiving an end of said wiper arm;

a lock associated with said receiver for locking said wiper arm onto said receiver.

3. The wiper arm window latch system as recited in claim 2 wherein said end comprises at least one groove, said lock comprising:

a resilient detent for cooperating with said at least one groove to lock said end of said wiper arm in said receiver.

4. The wiper arm window latch system as recited in claim 3 wherein said drive latch comprises an axis, said resilient detent comprises at least one spring-loaded ball biased towards said axis and received in said at least one groove to detachably lock said end of said wiper arm to said drive motor.

5. The wiper arm window latch system as recited in claim 1 wherein an end of said window wiper arm comprises a wiper latch, said drive latch comprises:

a cam member which cooperates with said wiper latch to lock said window to said door and permitting said wiper arm to rotate when driven by said drive motor.

6. The wiper arm window latch system as recited in claim 5 wherein said drive latch further comprises a cam wall which said cam member engages when said drive motor drives said wiper blade to an open position to unlock said window.

7. The wiper arm window latch system as recited in claim 3 wherein said wiper blade comprises an associated wiper drive torque, said resilient detent comprises a resilient detent torque and said drive motor comprises a drive motor torque, said drive motor torque being greater than said resilient detent torque which is greater than said wiper drive torque.

8. The wiper arm window latch system as recited in claim 1 wherein said drive coupler is located on an output shaft of said drive motor.

9. The wiper arm window latch system as recited in claim 1 wherein said drive coupler is located on an end of said wiper blade.

10. The wiper arm window latch system as recited in claim 1 wherein said drive coupler comprises at least one spring-loaded ball.

11. The wiper arm window latch system as recited in claim 1 wherein said wiper arm comprises an end for receipt in said drive coupler in order to permit said end to be snap-fit into said drive coupler.

12. The wiper arm window latch system as recited in claim 11 wherein said end comprises a portion which is generally conical.

13. The wiper arm window latch system as recited in claim 1 wherein said a drive coupler comprises a cam, said system further comprising:

a controller coupled to said drive motor for controlling the operation of said drive motor such that when said controller energizes said drive motor to open said window, said drive motor drives said drive coupler to cause said cam to engage a cam wall to release said end of said wiper arm, thereby opening said window.

14. The wiper arm as recited in claim 1 wherein said drive coupler comprises a spring for biasing an insert end of said wiper arm away from said drive coupler so that when said drive coupler unlatches said wiper arm said wiper arm and said window are thrust towards an open position.

15. The wiper arm window latch system as recited in claim 1 wherein said system comprises a stop for stopping said wiper arm in a predetermined position.

16. The wiper arm window latch system as recited in claim 15 wherein said stop is a mechanical stop.

17. The wiper arm window latch system as recited in claim 15 wherein said stop is a software algorithm which causes a controller to stop the wiper arm in said predetermined position.

18. A wiper system comprising a wiper arm, said wiper system comprising:

a wiper motor comprising an output shaft having a drive latch assembly;

said drive latch assembly comprising:

a latch release for detachably latching said wiper arm to said wiper motor so that said window becomes locked to said door; and

a resilient detent for detachably coupling said wiper arm to said output shaft, regardless of a rotational position of said wiper arm.

19. The wiper system as recited in claim 18 wherein said latch release comprises a spring-actuated cam lock.

20. The wiper system as recited in claim 19 wherein said wiper arm comprises an end comprising at least one groove, said lock comprising:

a resilient detent for cooperating with said at least one groove to lock said end of said wiper arm in said receiver.

21. The wiper system as recited in claim 20 wherein said drive latch assembly comprises an axis, said resilient detent comprises at least one spring-loaded ball biased towards said axis and received in said at least one groove to detachably lock said end of said wiper arm in said receiver.

22. The wiper system as recited in claim 18 wherein an end of said window wiper comprises a wiper latch, said drive latch comprises:

a cam member which cooperates with said wiper latch to lock said window to said door and permitting said wiper arm to rotate when driven by said drive motor.

23. The wiper system as recited in claim 22 wherein said drive latch assembly further comprises a cam wall which said cam member engages when said drive motor drives said wiper blade to an open position to unlock said window.

24. The wiper system as recited in claim 20 wherein said wiper blade comprises an associated wiper drive torque, said resilient detent comprises a resilient detent torque and said drive motor comprises a drive motor torque, said drive motor torque being greater than said resilient detent torque which is greater than said wiper drive torque.

25. The wiper system as recited in claim 18 wherein said drive coupler is located on an end of said wiper blade.

26. The wiper system as recited in claim 18 wherein said drive coupler comprises at least one spring-loaded ball.

27. The wiper system as recited in claim 18 wherein said wiper arm comprises an end for receipt in said drive coupler in order to permit said end to be snap-fit into said drive coupler.

28. The wiper system as recited in claim 27 wherein said end comprising a portion which is generally conical.

29. The wiper system as recited in claim 18 wherein said drive coupler comprises a cam, said system further comprising:

a controller coupled to said drive motor for controlling the operation of said drive motor such that when said controller energizes said drive motor to open said window, said drive motor drives said drive coupler to cause said cam to engage a cam wall to release said end of said wiper arm, thereby opening said window.

30. A method for locking a window onto a door and a wiper arm onto an output shaft of a motor comprising the steps of:

rotatably mounting a wiper arm onto said window;

mounting a drive motor for driving said wiper arm onto a door; and

situating a drive latch onto said drive motor, said drive latch latching said window to said door when said window is in a closed position and substantially simultaneously coupling said wiper arm to said drive motor such that when said window is in said closed position said wiper arm may be driven by said drive motor.

31. The method as recited in claim 30 wherein said method further comprises the step of:

providing a drive latch comprising a receiver for receiving an end of said wiper arm;

providing a drive latch comprising a lock associated with said receiver for locking said wiper arm onto said receiver.

32. The method as recited in claim 31 wherein said end comprises at least one groove, said method further comprises:

providing a drive latch comprising a lock comprising a resilient detent for cooperating with said at least one groove to lock said end of said wiper arm in said receiver.

33. The method as recited in claim 32 wherein said drive latch comprises an axis, said method comprising the step of:

situating at least one spring-loaded ball biased towards said axis in said drive latch to be received in said at least one groove in order to detachably lock said end of said wiper arm in said receiver.

34. The method as recited in claim 30 wherein said method comprises the steps of:

providing a window wiper comprising an end having a wiper latch,

providing a drive latch comprising a cam member which cooperates with said wiper latch to lock said window to said door while permitting said wiper arm to rotate when driven by said drive motor.

35. The method as recited in claim 34 wherein said drive latch further comprises a cam wall, said method comprising the step of:

positioning said cam wall in proximity to said cam member so that when said drive motor drives said wiper blade to a window open position, said window is unlocked.

36. The method as recited in claim 32 wherein said method further comprises the step of:

providing a wiper blade comprising an associated wiper drive torque which is less a resilient detent torque of said resilient detent which is less than a drive motor torque of said drive motor.

37. The method as recited in claim 30 wherein said method further comprises the step of:

stopping the wiper arm on the glass.

38. The method as recited in claim 37 wherein said method further comprises the step of:

using a mechanical stop to stop the wiper arm on the glass.

39. The method as recited in claim 37 wherein said method further comprises the step of:

using a stopping routine to cause said controller to stop said wiper arm.

40. A method for latching a window to a door, said method comprising the steps of:

~~rotatably mounting a wiper arm on a window;~~

using a drive coupler to couple said wiper arm to a drive motor and to also retain the window in a closed position.

41. The method as recited in claim 40 wherein said method further comprises the step of:

providing the drive coupler on an output shaft of said drive motor.

42. The method as recited in claim 40 wherein said method further comprises the step of:

providing the drive coupler on an end of said wiper blade.

43. The method as recited in claim 40 wherein said method further comprises the step of:

providing a drive coupler having at least one spring-loaded ball.

44. The method as recited in claim 41 wherein said method further comprises the step of:

providing a wiper arm having a notched end for receipt in said drive coupler in order to permit said end to be snap-fit into said drive coupler.

45. The method as recited in claim 44 wherein said method further comprises the step of:

providing an end comprising a portion which is conical.

46. The method as recited in claim 45 wherein said method further comprises the step of:

providing a drive coupler having a cam;

providing a controller for controlling the operation of said drive motor such that when said controller energizes said drive motor to open said window, said drive motor drives said drive coupler to cause said cam to engage a cam wall to release said end of said wiper arm, thereby opening said window.

47. The method as recited in claim 30 wherein said method comprises the step of:

driving said drive latch to a first position where said drive motor is de-coupled from said wiper arm.

48. The method as recited in claim 30 wherein said method further comprises the step of:

driving said drive latch to a second position where said window becomes unlatched from said door.

49. The method as recited in claim 47 wherein said method further comprises the step of:

driving said drive latch to a second position where said window becomes unlatched from said door.

50. A wiper arm window latch system comprising:

a wiper arm rotatably mounted in a window for wiping said window;

a drive motor for driving said wiper arm; and

coupler means for coupling said wiper arm to said drive motor in order to latch said window to a door and also for coupling said wiper arm to said drive motor such that when said window is in a closed position said wiper arm may be rotatably driven by said drive motor.

51. The wiper arm window latch system as recited in claim 50 wherein said drive latch comprises:

a receiver for receiving an end of said wiper arm;

a lock associated with said receiver for locking said wiper arm onto said receiver.

52. The wiper arm window latch system as recited in claim 51 wherein said end comprises at least one groove, said lock comprising:

a resilient detent for cooperating with said at least one groove to lock said end of said wiper arm in said receiver.

53. The wiper arm window latch system as recited in claim 52 wherein said drive latch comprises an axis, said resilient detent comprises at least one spring-loaded ball biased towards said axis and received in said at least one groove to detachably lock said end of said wiper arm in said receiver.

54. The wiper arm window latch system as recited in claim 50 wherein an end of said window wiper comprises a wiper latch, said drive latch comprises:

a cam member which cooperates with said wiper latch to lock said window to said door and permitting said wiper arm to rotate when driven by said drive motor.

55. The wiper arm window latch system as recited in claim 54 wherein said drive latch further comprises a cam wall which said cam member engages when said drive motor drives said wiper blade to an open position to unlock said window.

56. The wiper arm window latch system as recited in claim 52 wherein said wiper blade comprises an associated wiper drive torque, said resilient detent comprises a resilient detent torque and said drive motor comprises a drive motor torque, said drive motor torque being greater than said resilient detent torque which is greater than said wiper drive torque.

57. The wiper arm window latch system as recited in claim 50 ~~wherein said coupler means~~ is located on an output shaft of said drive motor.

58. The wiper arm window latch system as recited in claim 50 wherein said coupler means is located on an end of said wiper blade.

59. The wiper arm window latch system as recited in claim 50 wherein said coupler means comprises at least one spring-loaded ball.

60. The wiper arm window latch system as recited in claim 50 wherein said wiper arm comprises an end for receipt in said coupler means in order to permit said end to be snap-fit into said coupler means.

61. The wiper arm window latch system as recited in claim 60 wherein said end comprises a portion which is conical.

62. The wiper arm window latch system as recited in claim 50 wherein said a coupler means comprises a cam, said system further comprising:

a controller coupled to said drive motor for controlling the operation of said drive motor such that when said controller energizes said drive motor to open said window, said drive motor drives said coupler means to cause said cam to engage a cam wall to release said end of said wiper arm, thereby opening said window.

63. The wiper arm as recited in claim 50 wherein said coupler means comprises a spring for biasing an end of said wiper arm away from said coupler means so that when said coupler means unlatches said wiper arm said wiper arm and said window are thrust towards an open position.